

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
28 July 2005 (28.07.2005)

PCT

(10) International Publication Number
WO 2005/069070 A1

(51) International Patent Classification⁷: G02F 1/17

(21) International Application Number:
PCT/IB2005/050045

(22) International Filing Date: 5 January 2005 (05.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0400289.5 8 January 2004 (08.01.2004) GB

(71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): VERHAEGH, Nynke, A., M. [NL/NL]; c/o Philips Intellectual Property, & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB). DE BOER, Dirk, K., G. [NL/NL]; c/o Philips Intellectual Property, & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB). SCHLANGEN, Lucas, J., M.

[NL/NL]; c/o Philips Intellectual Property, & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB). VAN DER HEIJDEN, Bas [NL/NL]; c/o Philips Intellectual Property, & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB). JOHNSON, Mark, T. [GB/NL]; c/o Philips Intellectual Property, & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB).

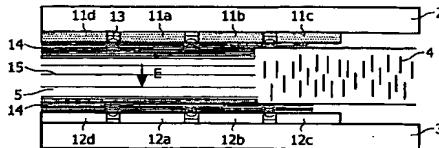
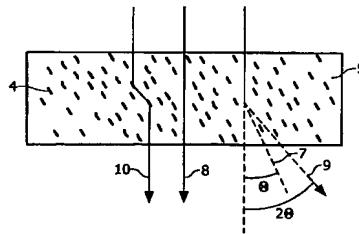
(74) Agents: WHITE, Andrew, G. et al.; c/o Philips Intellectual Property, & Standards, Cross Oak Lane, Redhill, Surrey RH1 5HA (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

(54) Title: ELECTRO-OPTICAL CELL



(57) Abstract: The invention relates to an electro-optical cell (1) comprising a first (2) and a second (3) support member, an electro-optical medium (5) between the support members and an electrode arrangement (11, 12) on the support members such that an electric field can be applied, in the electro-optical medium, perpendicular to the support members, aligned with the support members or at an oblique angle (7) with respect to the support members. The electro-optical cell further comprises layers (14) of material with different dielectric constant between the support members in order to reduce the inhomogeneity of the electric field lines in the electro-optical medium. By having a layer of cholesteric liquid crystals between the support members, the electro-optical cell will function as a colour filter for varying applied fields. By introducing a particle suspension in a medium between the support members, an electro-optical cell is created that can be switched between a transmissive, reflective and partly deflective state.

WO 2005/069070 A1



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY,*

TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.